Money Isn't All You're Saving

Improve Energy Efficiency with High Efficiency Gas-fired Water Heaters

Builder Guide

DESCRIPTION

Water heating costs can be a significant expense for some homeowners. Minimum efficiency gas-fired water heaters can cost over $200 per year to operate. High-efficiency gas-fired water heaters can reduce these costs by $50 or more.

High efficiency gas-fired water heaters typically include several energy efficiency features. Devices to prevent sediment from collecting on heat transfer surfaces improve heating efficiency and reduce hot water recovery time. Low-input pilot burners minimize standby losses. Further, high efficiency gas-fired water heaters capture additional heat from the combustion gases using improved flue designs. Combustion gases are then exhausted at a lower temperature, and can be vented inexpensively with PVC (plastic) pipe directly through the wall, like a dryer vent. Direct venting also reduces chimney losses and can improve combustion efficiency further if assisted by a fan (power venting.) High efficiency gas-fired water heaters often offer additional benefits such as improved performance, longer life, extended warranties and safer operation.

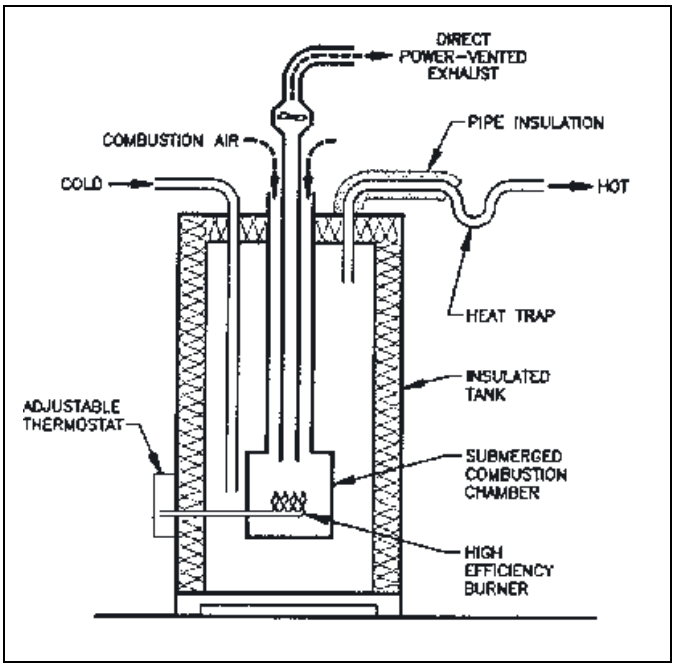
BENEFITS

Providing energy efficient houses with high efficiency water heaters can cost-effectively reduce your home buyers' utility bills.

❑ Energy efficient gas-fired water heaters save money.

A high efficiency gas-fired water heater can reduce water heating bills by 10 - 25% over a minimum efficiency gas-fired water heater. This can mean significant annual savings.

Key Features of Energy Efficient Gas Water Heaters



❑ Installation of high efficiency gas-fired water heaters is hassle-free.

Contractors are already experienced in the installation of gas-fired water heaters. Providing high efficiency gas-fired water heaters in your houses usually requires minimal changes to construction practices.

❑ High efficiency gas-fired water heaters feature higher quality components that last longer.

The quality construction, improved technology, and attention to detail found in high efficiency gas-fired water heaters can result in longer equipment life.

❑ Direct vented gas-fired water heaters are safer and do not require a chimney stack.

In less-efficient atmospheric-vented gas-fired water heaters, combustion air is drawn from inside the house. However, houses can become

depressurized due to exhaust fan or clothes dryer operation, use of a fireplace, duct leakage, or even wind. When a house becomes depressurized, combustion gases in a low-efficiency gas-fired water heater may be drawn back into the house. This is called "back-drafting" and can be a serious health hazard, including risk of carbon monoxide poisoning. Most high-efficiency gas-fired water heaters (direct-vented) use a fan and vent pipes to control the flow of intake and exhaust gases, eliminating the risk of back-drafting. This also eliminates the need for an exhaust flue vertically through the home.

INTEGRATION

- **It is critical to consider other equipment impacts.**

Range hoods, clothes dryers, bathroom fans, whole house fans and central vacuums can all operate individually, in combination adding up to 600 CFM or more of negative pressure. Be sure to use power vented water heaters where the potential for significant negative pressure exists. (i.e. most new houses.)

- **Installation of high efficiency gas-fired water heaters requires coordination with subcontractors.**

Direct-vented combustion appliances are vented directly through walls because they don't need a chimney stack. This may save on materials and construction costs. Both masonry and framing crews should be familiar with the installation requirements of direct-vented equipment. However, these trades still need to be coordinated.

- **Using high-efficiency appliances ensures that first costs of water heating equipment are minimized.**

Use of energy efficiency dishwashers and clothes-washers, along with low-flow faucets and showerheads can reduce hot water requirements, thereby allowing installation of smaller less-costly water heaters. See the Builder Guide fact sheet on "Energy Efficient Appliances" for more information.

- **Water piping systems should also be properly designed and insulated to minimize heat losses.**

Heat losses from piping systems can be responsible for degrading the efficiency of a gas-fired water heater by more than 10%. To get the most out of high efficiency water heaters, well-insulated piping systems with heat traps should be installed.

RESOURCES

- For more information on ENERGY STAR HVAC Program and qualifying equipment, call 1-888-STAR YES.

- *GAMA Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment*, Gas Appliance Manufacturers Association, 1996. Available at 703-525-9565.

- *Local utilities can also provide information on high-efficiency water heaters.*